



- Q-4 Attempt all questions (14)**
- a) Differentiate between: (7)
- Conformation and Configuration
  - Reducing and non-reducing sugar
  - Anomer and epimer
- b) What is the difference between glutamate and glutamine? Show by drawing the structure (4)
- c) Calculate the standard Gibbs free energy change for the formation of methane from carbon and hydrogen at 298K. (3)
- Given the  $\Delta H$  value is  $-74.9\text{KJ/mol}$   $\Delta S = -80.7\text{J/K.mol}$
- Q-5 Attempt all questions (14)**
- a) What assumptions were made for derivation of MM equation of enzyme kinetics? Derive Michaelis Menten equation. (7)
- b) Write a note on sphingomyelins explaining the structure and function of cerebrosides and gangliosides (4)
- c) Distinguish between lyases and ligases (3)
- Q-6 Attempt all questions (14)**
- a) How does  $K_m$  and  $V_m$  changes in presence of a non competitive inhibitor? Where do lines intersect on a Lineweaver–Burk plot showing Non- competitive inhibition? Show graphically. (7)
- b) Write short note on water soluble Vitamins B (4)
- c) Define: (3)
- Activation energy
  - Active site
  - First law of Thermodynamics
- Q-7 Attempt all questions (14)**
- a) Write a short note on Polysaccharides (7)
- b) What are the different factors that affect velocity of enzyme catalyzed reactions (4)
- c) Explain the structure and function of hemoglobin (3)
- Q-8 Attempt all questions (14)**
- a) The spontaneity of a biochemical reactions depends on  $\Delta G$ . How the second law of thermodynamics helps us determine whether a process will be spontaneous? (7)
- b) Explain the diseases due to deficiency of any two fat soluble vitamins (4)
- c) Describe the reaction mechanisms of bisubstrate reaction (3)

